

3.8.37 Find  $dy/d\theta$  for  $y = \ln(\sec(\ln\theta))$ .

Solution

We have by the Chain Rule (Theorem 3.2) that

$$\frac{dy}{d\theta} = \frac{1}{\sec(\ln\theta)} \left[ \sec(\ln\theta) \tan(\ln\theta) \left[ \frac{1}{\theta} \right] \right]$$

$$= \boxed{\frac{\tan(\ln\theta)}{\theta}} \quad \square$$